

# **DIETARY TIPS FOR THE ELDERLY**

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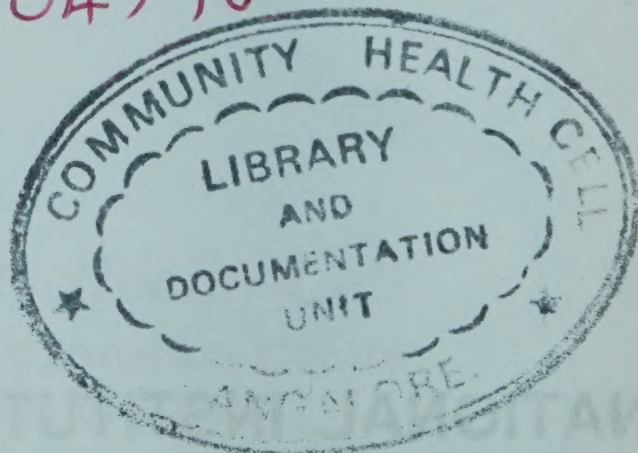
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## PREFACE

Ageing process involves changes in physiological, pathological, social and psychological conditions of a person. Added to this, due to changing socio-economic environment, elderly people are sometimes left alone to fend for themselves to maintain their health. In such a situation, provision of nutritious recipes involving minimal cooking time and dietary modifications would help them to a great extent. This booklet contains information on the balanced diet for the elderly. Also included in it are some dietary tips, which help in maintaining normal health. Recipes that are incorporated in this booklet (i.e., 1. Easy-to-cook and 2. Ready-to-eat) are based on the criteria of minimal cooking time and convenience. It is hoped that this booklet will be useful to the senior citizens in maintaining their nutrition and health.

**Vinodini Reddy**  
Director





## INTRODUCTION

The aged or the elderly (more than 60 years of age) belong to post mature adult group of population. These people with all their wisdom and experience contribute their mite to total family income and welfare of society, and as such they should be considered as an asset to the community. It is true, that advances in medical science, improved health care and standard of living have helped people to stay healthy and prolong their longevity. However, during the aging process, certain inevitable degenerative changes that occur, result in functional decline. These are mostly influenced by genetics, nutrition, socio-economic, psychological conditions, illnesses and availability of health care facilities. Hence, proper nutrition and health care are necessary for them to lead a normal life. In this connection, it is important to consider the following inter-related aspects :

1. The ageing process
2. Need for good nutrition
3. Easy dietary tips for the elderly

### **Ageing process and nutrition**

Some of the physiological, social and psychological changes that herald onset of old age are :

1. Lack of physical activity
2. Poor appetite
3. Feeling of unwantedness (loneliness)
4. A sense of neglect

The physiological and pathological changes that inevitably accompany ageing result in degenerative processes and lower functional capacity. These in turn, influence nutritional status of old people. Some of these nutrition related factors that have a direct influence on food intake are briefly described below :

1. Lack of physical activity reduces Basal Metabolic Rate (BMR) and thereby energy intake need to be reduced. However, there are no drastic modifications in mineral and vitamin requirements.
2. Alterations in gastrointestinal tract - a decreased secretion of salivary flow due to involution of salivary glands, a decrease in the volume and acidity of gastric juices and lower rate of absorption.



During old age, people tend to be disinterested in cooking food everyday and often not keen in opting for variety of foods. In some cases, food becomes monotonous and a few start skipping their meals, resulting in malnutrition. On the contrary, there is another group of elderly people who turn obese by overeating a variety of convenient and fast foods, and become the victims of overnutrition. Some of the common nutrition related problems among the elderly are :

1. Diabetes
2. Hypertension
3. Other cardiovascular problems
4. Gastrointestinal problems
5. Kidney problems
6. Arthritis

These indicate that a proper dietary management is necessary for health and well-being of the elderly.

### **Elderly population and some social and psychological factors**

With the discovery of life saving drugs, and eradication of infectious diseases, like expectancy of our people is going up. According to 1981 Census of India<sup>1</sup>, it is stated that the elderly population constitutes 6.1% and by the year 2000 AD this figure is going to rise to 9.1%. It is also true, that in majority of elderly people, it is very difficult to change some of the already established food habits, carried over from childhood. Food habits get influenced by several factors such as family, education, occupation, economic status, lifestyles and cultural norms. Factors which have a negative influence on the health and nutrition of the elderly are :

1. Lack of family support in times of need (because of widely prevalent nuclear family system).
2. Feeling of unwantedness
3. Economic constraints
4. Lack of value system among the members in the family.
5. Stressful conditions leading to tensions
6. Loneliness leading to disinterestedness in living and eating, resulting in malnutrition.



While each of these factors needs an indepth consideration in providing proper care for the elderly, the present booklet deals with some dietary tips for maintaining normal health and nutrition. It is necessary to consider the nutrient requirements of the elderly before discussing other aspects.

## **NUTRIENT REQUIREMENTS**

Ideally, there are no specific nutrient requirements worked out for the elderly in India. However, one assumes some differences in the requirements of the elderly compared to those of young adults, because calorie intake is proportional to energy expenditure. In the case of minerals and vitamins, there is practically no difference.

### **1. Energy**

Energy is required for daily activities like walking, carrying out daily work and for vital functions occurring inside the body such as digestion of food, circulation of blood and respiration. Basal metabolic rate gradually decreases after the attainment of maturity due to a decrease in muscle mass tissues and physical activity. Energy requirement is reduced by 11% and 10% in men and women respectively, compared to that of young adults(2). Hence calorie requirement has to be adjusted taking into consideration the body weight.

### **2. Protein**

Proteins are necessary for building up muscles, replenish vital body fluids like blood and to make good the wear and tear of the body. They are also required for the metabolic processes of the body in the form of enzymes and hormones. About 50-60 gm of proteins are enough in a day's diet, providing about 10-12% of total calories(2).

### **3. Fats and oils**

Fats and oils make food palatable and help in the absorption of fat soluble vitamins like A,D,E and carotene. Fats and oils are concentrated source of energy. Basically, the fat intake may be the same as that of young adults.

### **4. Carbohydrates**

Carbohydrates are energy yielding substances. Senses of taste and smell are less sharp among older people which interfere with the



appetite for many foods. During old age, loss of teeth makes it difficult to chew food properly. Elderly people tend to consume more of carbohydrate rich foods which require minimum chewing, are easily digestible need minimum cooking time, stand maximum storage, and are cheaper than protein rich foods. Carbohydrates form the bulk of daily diet. Mixed cereal diet is advisable to avoid the lack of minerals and vitamins which may result from use of single cereal. It is necessary that at least 50% of total calories are derived from carbohydrates(2).

## **5. Fibre**

Apart from digestible carbohydrates such as cereals, sugar etc., several foods contain non-digestible carbohydrates in the form of cellulose, gums, pectin etc. They are called dietary fibre because they are indigestible. Dietary fibre contributes to the bulk of stools and helps to relieve constipation and lowers blood cholesterol level specially among elderly people. An amount of 25-30 gms of fibre is considered to be beneficial (2).

## **MINERALS**

### **6. Calcium**

Among the minerals, calcium is necessary for the formation and strength of bones in the body. Lack of this mineral results in Osteoporosis (a bone disease especially seen among females) and periodontal diseases among the elderly. A slightly higher amount of calcium is required by the elderly as compared to adults (i.e., 0.8 to 1.0 g/day) to keep them healthy and also to compensate for lower absorption(2).

### **7. Iron**

Iron is essential for the formation of haemoglobin in the blood. Since the amount of iron absorbed from food is quite small (ie., 2.5%), it is necessary to have 20-30 mg of iron per day (2).

## **VITAMINS**

Vitamins, though required in small quantities are very essential to maintain one's health. Recent advances indicate that antioxidant vitamins such as A,E,C and  $\beta$ -carotene can delay the aging process. They also prevent degeneration in blood vessels, heart, joints and eye lens etc. Among vitamins, the most important are vitamin A,B,C and D.



## 8. Vitamin A

Vitamin A is necessary for good eye sight, healthy skin and growth and development. Recent studies also suggest anti-cancer properties to vitamin A.

## 9. B-complex vitamins

Thiamine and Riboflavin among B-complex vitamins are essential to prevent signs and symptoms such as Angular Stomatitis, Glossitis and Nervous disorders.

## 10. Vitamin C

Vitamin C is necessary to prevent bleeding gums (scurvy) and for developing resistance against infections.

## 11. Vitamin D

Vitamin D along with calcium, helps to develop healthy skin and bones.

Source : Milk and Sunshine

Major food sources of these nutrients are given in Table 1.

## BALANCED DIETS FOR THE ELDERLY

Nutrient requirements for Indians have been worked out by ICMR (1990)(3), according to age, sex, physical activity and physiological status. Considering the lower physical activity during old age, the requirement for energy is expected to be 10-11% less than that of adults (2), with a little difference in other nutrients. Accordingly, balanced diets for the elderly are worked out (Table 2), based on the Recommended Dietary Allowances for Indian Adults (ICMR, 1989)(3). The nutrients provided by the balanced diets are also indicated at the bottom of the table.

A sample menu pattern worked out based on the suggested balanced diet for the elderly belonging to different regions of the country is indicated in Table 3. Similar menu patterns according to seasons and disease conditions can also be worked out.

**Table - 1**

**MAJOR FOOD SOURCES OF NUTRIENTS**

Nutrients	Foods
Energy	Cereals, pulses, roots and tubers fats and oils, sugar and jaggery.
Protein	Milk, egg, fish, meat, liver, pulses, nuts and oilseeds
Fat	Butter, ghee, vegetable oils, hydrogenated fats, nuts and oilseeds
Carbohydrates	Cereals, pulses, sugar and jaggery, roots and tubers
Fiber	Green leafy vegetables, fruits, unrefined cereals, pulses and legumes
Calcium	Milk and milk products, ragi, green leafy vegetables
Iron	Liver, green leafy vegetables, rice flakes, whole wheat flour, ragi, pulses
Vitamin 'A' (Retinol and $\beta$ -Carotene)	Fish, liver oil, butter, ghee, milk, carrots, green leafy vegetables, papaya, mango
B-complex vitamins	Milk, egg and liver, handpounded rice, whole wheat, whole grams, pulses, green leafy vegetables, nuts and oil seeds
Vitamin 'C'	Amla (Indian gooseberry), lime, orange, guava, tomato, lettuce, sprouted grams
Vitamin 'D'	Milk Other Source : Sunlight



Table 2

**BALANCED DIET FOR AN ELDERLY PERSON FOR A DAY**

Foodstuffs	Quantity (raw) gms.	
	Males	Females
Cereals	350	225
Pulses	50	40
Vegetables	200	150
Green leafy vegetables	50	50
Roots and tubers	100	100
Fruits	200	200
Milk and milk products	300	300
Sugar	20	20
Fats and oils	25	20

**Approximate nutrients supplied**

Calories	2200	1700
Protein	65 g	50 g
Fat	50 g	40 g
Calcium	1 g	0.9 g
Iron	38 mg	30 mg
Vitamin A (Retinol)	1030 $\mu$ g	930 $\mu$ g
Thiamin	1.96 mg	1.45 mg
Riboflavin	1.78 mg	1.51 mg

Table 3

### SAMPLE MENU FOR DIFFERENT REGIONS OF THE COUNTRY COOKED MEASURES

Meals	East	West	North	South				
<b>Bed tea</b>	Biscuits 2 Tea 1 cup	Biscuits 2 Tea or Coffee 1 cup	Biscuits 2 Tea 1 cup	Biscuits 2 Coffee 1 cup				
<b>Breakfast</b>								
Mudi	1 K	-	-	-				
Bhakodi	-	One	-	-				
Dalia	-	-	1 K	-				
Idli	-	-	-	Two				
Chutney	-	-	-	1 tbsp				
Milk with sugar	1 K	1 K	1 K	1 K				
<b>Mid Morning</b>								
Banana	One	One	One	One				
Orange	One	One	One	One				
<b>Lunch</b>								
	M	F	M	F	M	F	M	F
Rice	3 K	2 K	2 K	1 K	-	-	3 K	2 K
Phulka	-	-	1	1	3	2	-	-
Dal (lentil)	1½ K	1 K	1 K	¾ K	1 K	¾ K	-	-
Sambar	-	-	-	-	-	-	1½ K	1 K
Chor Chari	1 K	¾ K	-	-	-	-	-	-
Avial	-	-	-	-	-	-	1 K	¾ K
Cauliflower or carrot curry	-	-	1 K	¾ K	1 K	¾ K	-	-
Curd	-	-	1 K	¾ K	1 K	¾ K	1 K	¾ K
Misti dahi	½ K	½ K	-	-	-	-	-	-
Raita	-	-	-	-	1 K	1 K	-	-
Lime	½	½	½	½	½	½	-	-
Salad (Raw)	2	2	2	2	2	2	2	2
	tbsp	tbsp	tbsp	tbsp	tbsp	tbsp	tbsp	tbsp



Meals	East	West	North	South
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### Evening Tea

Tea	1 cup	1 cup	1 cup	1 cup
Dhokla	-	2 pieces	-	-
Sandesh	1 piece	-	-	-
Sandwich	-	-	1	-
Upma	-	-	-	1 K

Dinner	M	F	M	F	M	F	M	F
Rice	3 K	2 K	2 K	1 K	-	-	3 K	2 K
Phulka	-	-	1	1	3	2	-	-
Cabbage	½ K	½ K	½ K	½ K	½ K	½ K	½ K	½ K
Sprouted gram	-	-	½ K	½ K	-	-	½ K	½ K
Greengram whole	1 K	¾ K	-	-	1 K	¾ K	-	-
Rasam	-	-	-	-	-	-	1 K	1 K
Curd	-	-	½ K	½ K	½ K	½ K	½ K	½ K
Salad (Raw)	2	2	2	2	2	2	2	2
	tbsp	tbsp	tbsp	tbsp	tbsp	tbsp	tbsp	tbsp
Lime	½	½	½	½	½	½	½	½

Note 1 : Non-vegetarians can include

Eggs 2

Or Mutton Curry 1 K

Or Fish Curry 1 K

Use 2 tsp of extra oil to cook and cut down 1 cup of milk and dal for one meal

Note 2 : K-Means Katori or bowl. Volume of 1 K is 150 ml

M = Male F = Female

## **SOME DIETARY TIPS FOR THE ELDERLY**

The diet of the elderly may be modified according to physical activity of an individual and general health condition. The following tips are suggested for dietary management of the elderly.

1. Take simple but nutritious diet.
2. Improve the quality of diet by adding liberal amounts of green-leafy vegetables, fruits and whole cereals.
3. Take frequent, but small meals
4. Take plenty of fluids and semi-solids
5. Avoid fried foods
6. Reduce total fat, refined carbohydrate
7. Reduce salt intake
8. Avoid fasting

### **Others**

9. Maintain good social and psychological environment for normal health
10. Do regular physical exercise like brisk walking
11. Avoid inactivity, loneliness and social isolation.

## **RECIPES FOR THE ELDERLY**

As the age advances, old people have some problems of chewing foods and digestion. With the changing socio-economic environment sometimes the elderly people are forced to live on their own and cook their own food. Hence they need some simple, but nutritious recipes to maintain good health. A few such recipes have been formulated satisfying the following criteria, i.e.,

1. Should be a nutritious supplement or a mini meal.
2. Easy-to-cook
3. Involve minimum time for cooking or no cooking
4. Ready-to-eat as and when necessary
5. Can be stored for at least 15 days without spoilage

Two types of recipes are suggested (1) easy-to-cook; and (2) ready-to-eat. These included semi-solids like porridge, dalia etc. Solids such as upma, pohe and biscuits. These recipes provide on average 200-300 calories per measure.



It may be mentioned here that one of the members of 'DINCLE' a like-minded citizens' association, for the elderly has approached the Institute for providing these recipes. He has already tried 12 recipes i.e., 6 from each of these two types and said that they were acceptable and liked by the old people.

## LIST OF RECIPES

### I. Easy-to-cook

1. Dalia
2. Ragi Ambali
3. Ragina
4. Khichedi
5. Perugu Atukulu
6. Savia Upma
7. Upma (Suji)
8. Pohe
9. Methi Paratha
10. Curd Salad
11. Sprouted Green Gram Whole (cooked) or Bengal Gram Whole
12. Suji Kheer
13. Kheer (Rice-based)

### II. Ready-to-eat

1. Black gram dal Laddu
2. Coconut Laddu
3. Groundnut Biscuits
4. Sesame Biscuit
5. Cheera
6. Chikki (Groundnut)
7. Chidwa (Mixture)
8. Matthi
9. Namakpara

# I. EASY-TO-COOK RECIPES

## 1. Dalia

<i>Ingredients</i>	<i>Weight. (g)</i>	<i>Measure/No</i>	
Broken wheat	100	$\frac{2}{3}$	k
Greengram dal	100	$\frac{2}{3}$	k
Cumin seeds	5	1	tsp
Grated carrot	100	4	
Black pepper powder	2	$\frac{1}{2}$	tsp
Oil	15	4	tsp
Salt	to taste	1	tsp
Water	450 ml	3	k

### Method

Heat oil in pressure cooker. Add cumin and fry till it turns brown. Add broken wheat and fry till golden brown. Add rest of the ingredients and cook at 15 lbs pressure for 2 minutes.

Total weight of cooked dalia	750 g
Measure	7 k

### Nutritive Value<sup>4</sup>

Calories	900	Calcium	390 mg
Protein	42 g	Iron	17 mg
Fat	19 g		

K = Katori or bowl with 150 ml of volume

## 2. Ragi Ambali

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>	
Roasted ragi	100	$\frac{2}{3}$	K
Butter milk	500 ml	3	K
Roasted groundnuts (powder)	10	14	
Green coriander leaves	1	a few	
Black pepper	2	$\frac{1}{2}$	tsp
Salt	to taste		
Water	300 ml	2	K



## Method

Powder roasted ragi and make a batter with water. Cook on slow fire stirring continuously till thick. Add rest of the ingredients, mix well and remove.

Total weight of cooked ragi porridge 860 g  
Measure 6 k

## Nutritive value

Calories	460	Calcium	502	mg
Protein	14 g	Iron	11	mg
Fat	11 g			

## 3. Ragina

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Roasted ragi	100	$\frac{2}{3}$ K
Roasted bengalgram dal	50	$\frac{1}{4}$ K
Sugar	150	1 K
Banana	100	1
Water	300	2 K
Milk	500	$3\frac{1}{4}$ K
Cashewnuts/groundnuts	20	20
Cardamom	0.5	2

## Method

Powder all the ingredients except banana. Mix them well. Add cold water and make into a thick batter. Add milk and cook on slow fire stirring continuously till raw smell disappears and becomes semi-solid. Remove from fire and mix banana in it.

Total weight of cooked ragina 960 g  
Measure 6 K

## Nutritive Value

Calories	1775	Calcium	1248	mg
Protein	42 g	Iron	13.7	mg
Fat	42.5 g			

#### 4. Khichedi

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Rice	100	$\frac{2}{3}$ K
Greengram dal or lentil dal	100	$\frac{2}{3}$ K
Onion	20	1 (small)
Carrot	30	2
Beans	30	10
Ginger	5	A piece
Salt	To taste	
Oil	20	5 tsp
Cumin	2	$\frac{1}{2}$ tsp
Green chillies	1	1
Water	500	$3\frac{1}{4}$ K

#### Method

Cut and wash all vegetables. Fry cumin in oil. Add sliced ginger and fry for a few seconds. Add all the ingredients and cook at 15 lbs pressure for a minute. Let the pressure release completely and open.

Total weight of khichedi	640 g
Measure	4 k

#### Nutritive Value

Calories	935	Calcium	125 mg
Protein	34 g	Iron	13 mg
Fat	22 g		

#### 5. Perugu Atukulu

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Pressed rice	100	1 K
Curd	270	2 K
Green chillies	1	1
Green coriander leaves	2	$\frac{1}{2}$ bundle
Grated carrot	30	2
Salt	To taste	



**Method**

Wash pressed rice once and squeeze out the water. Add it to churned curd along with other ingredients.

Total weight of perugu atukulu	400 g
Measure	3 K

**Nutritive Value**

Calories	524	Calcium	450 mg
Protein	15 g	Iron	22 mg
Fat	12 g		

**6. Savian Upma**

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Vermicelli (Savian)	100	1 K
Peas (shelled)	100	1 K
Onion	50	2
Green chillies	1	1
Mustard	2	½ tsp
Oil	20	5 tsp
Turmeric	a pinch	
Ginger	5	a piece
Water	325 ml	2 K
Green coriander leaves	5	½ a bunch
Salt	to taste	

**Method**

Roast savian till golden brown. Heat oil in one vessel, splutter mustard, add chopped onions, ginger and green chillies. Fry till golden brown. Add salt, turmeric, boiled peas, savian and water. Cook on slow fire till savian are soft absorbing all the water. Savian strands should not stick to each other.

Total water of cooked savian	380 g
Measure	4 K

**Nutritive Value**

Calories	670	Calcium	78 mg
Protein	17 g	Iron	6 mg
Fat	21 g		



## 7. Upma

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Semolina	100	$\frac{3}{4}$ K
Onion	30	8 tsp
Onion	30	1 (small)
Bengalgram dal	5	1 tsp
Blackgram dal	5	$\frac{1}{2}$ tsp
Mustard	2	$\frac{1}{2}$ tsp
Curry leaves	2	a few
French Beans	30	10
Cashewnuts	20	18
Water	360	$2\frac{1}{4}$ K
Salt	to taste	

### Method

Heat oil. Add black and bengalgram dal. Fry till brown. Add mustard and fry till it sputters. Add curry leaves onions and green chillies. Fry till soft but not brown. Add salt and water. When it boils add semolina slowly, mixing all the time so that no lumps are formed. Cook on slow fire till it leaves the sides. Remove.

Total weight of cooked upma	405 g
Measure	4 K

### Nutritive Value

Calories	810	Calcium	93 mg
Protein	18 g	Iron	5 mg
Fat	41 g		

## 8. Pohe

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Pressed rice	100	1 K
Onion	50	2 (small)
Potato	100	2 (medium)
Sesame	20	2 tbsp
Mustard	1	a pinch

Green chillies	2	2
Green coriander leaves	3	a few
Oil	30	8 tsp
Turmeric	0.5	a pinch
asafoetida		a pinch
Lime juice	12	2 tsp
Sugar	7	1 tsp
Salt	to taste	

### Method

Slice onion and green chillies. Peel and cut potato in small pieces and keep aside. Heat oil in a vessel and fry mustard, wait till it splutters. Add asafoetida, green chillies and onion and fry for a few minutes till the onion is soft but not brown. Add potato pieces, salt and turmeric and cook till soft. Wash pressed rice once or twice and squeeze out all the water, mix a little salt and sugar with it. Add it to the cooked potatoes and mix well. Sprinkle green coriander leaves and lime juice and remove from fire.

Total weight of cooked pohe	545 g
Measure	5½ K

### Nutritive Value

Calories	890	Calcium	101 mg
Protein	14 g	Iron	26 mg
Fat	41 g		

## 9. Methi Paratha

Ingredients	Weight (g)	Measure/No.
Wheat flour	100	1 K
Bengalgram dal flour	50	½ K
Fenugreek leaves	100	10 bundles (small)
Green chillies	2	2
Salt	to taste	
Oil to fry	20	5 tsp
Onion	30	1



## Method

Wash and chop fenugreek leaves, onion and green chillies. Mix the ingredients and make dough using water. Roll and fry six parathas with this dough.

Total weight of parathas	325
Number of parathas	6

## Nutritive value

Calories	770	Calcium	486 mg
Protein	27 g	Iron	17 mg
Fat	25 g		

## 10. Curd Salad

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No</i>
Curd	200	1½ K
Cucumber	50	¼
Tomato	50	1
Boiled potato	50	1 small
Boiled beans	50	16
Grated carrot	50	2
Green chillies	2	2
Green coriander leaves	2	½ bundle
Salt	To taste	

## Method

Churn curd. Chop all the vegetables and add to curd. Add salt and serve.

Total weight	385 g
Measure	3 K

## Nutritive Value

Calories	258	Calcium	248 mg
Protein	10 g	Iron	5 mg
Fat	5 g		

## 11. Sprouted green gram whole (cooked)/Bengal gram whole

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Greengram whole	100	$\frac{3}{4}$ K
Grated carrot	40	2
Grated coconut	20	2 tbsp
Grated cucumber	40	$\frac{1}{4}$
Onion (chopped)	20	1
Green coriander leaves	5	1 bundle
Green chillies (chopped)	2	2
Salt	To taste	
Cumin seeds	5	1 tsp
Lime juice	5 ml	1 tsp

### Method

Soak cleaned gram for 5-6 hours. Decant the water and tie the grains in a moist cloth bag. Hang it and keep it moist throughout for 24-48 hours (depending upon the weather - winter needs longer period to sprout the gram) till the grains sprout. Open the bag and pick and discard the unsprouted grains. Heat oil, season with cumin. Add sprouted grain along with salt and other chopped and grated ingredients. When it is slightly warm, remove and add lime juice.

Total weight of cooked gram	280 g
Measure	$3\frac{1}{2}$ K

### Nutritive Value

Calories	520	Calcium	191 mg
Protein	26 g	Iron	10 mg
Fat	14 g		

## 12. Suji Kheer

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Semolina	75	$\frac{2}{3}$ K
Milk	500 ml	3 K
Sugar	50	$\frac{1}{3}$ K
Raisins	10	30
Almonds	10	10
Cardamom	0.5	2



**Method**

Roast semolina till slightly brown and gives an aroma. Add milk and cook till grains are cooked and become semi-solid. Add sugar, chopped nuts and powdered cardamom.

Total weight of cooked kheer	405 g
Measure	3½ K

**Nutritive Value**

Calories	910	Calcium	640 mg
Protein	28 g	Iron	8 mg
Fat	27 g		

**13. Kheer (Rice based)**

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Pressed rice or puffed rice or puffed paddy	100	1 K
Milk	350 ml	2½ K
Sugar	60	½ K
Raisins	20	20
Almonds/Cashewnuts (chopped)	20	20
Cardamom (powdered)	1	4

**Method**

Boil milk. Wash pressed rice once and squeeze out the water. Add it along with other ingredients to the milk.

Total weight of kheer	540 g
Measure	4 K

**Nutritive Value**

Calories	1014	Calcium	475 mg
Protein	26 g	Iron	23 mg
Fat	25 g		

## II. READY-TO-USE RECIPES

### 1. Blackgram dal Ladoo

Ingredients	Weight (g)	Measure/No.
Blackgram dal	100	$\frac{2}{3}$ K
Jaggery	100	2 medium size pieces
Cashewnuts	20	18
Cardamom	0.2	2
Ghee	40	$\frac{1}{3}$ K

#### Method

Roast blackgram on slow fire till golden brown. Grind it to fine powder. Heat ghee, fry cashewnuts and remove, powder them. Melt jaggery, add dal powder, ghee and mix well. Add powdered cardamom and cashewnut. Mix well, let it get little cool and then make balls.

Total weight of cooked ladoos	125 g
Number of balls	10

#### Nutritive Value

Calories	1300	Calcium	244 mg
Protein	28 g	Iron	22 mg
Fat	61 g		

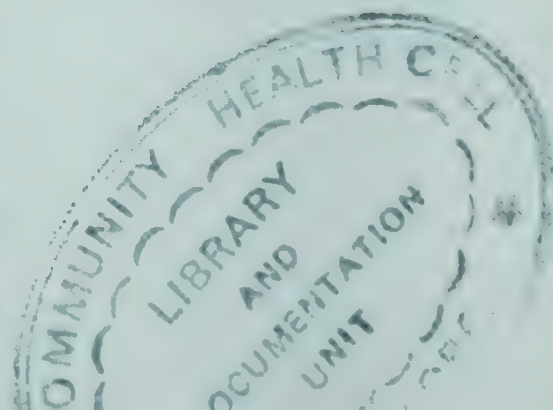
### 2. Coconut Ladoos

Ingredients	Weight (g)	Measure/No.
Fresh coconut	140	1
Jaggery	140	A big piece
Cardamom	0.2	2

#### Method

Grate coconut and powder cardamom. Melt jaggery, add coconut, mix well and cook. When it leaves sides of the vessel, remove. Cool a little and make into balls with greased hands.

Total weight of ladoos	200 g
Number of ladoos	10





## Nutritive Value

Calories	1165	Calcium	130 mg
Protein	7 g	Iron	11 mg
Fat	58 g		

## 3. Groundnut Biscuits

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Groundnuts	100	1 K
Wheat flour	100	1 K
Sugar	80	½ K
Oil	50	⅓ K
Salt		a pinch
Baking powder	3	½ tsp
Water	80 ml	½ K

## Method

Roast, dehusk and grind groundnuts in coarse pieces. Mix all the ingredients and make into a dough. Roll and cut in required shape. Bake them in an oven for 10 minutes at 250° - 300°F.

Total weight of biscuits	310 g
Number of biscuits	18

## Nutritive Value

Calories	1678	Calcium	138 mg
Protein	37 g	Iron	24 mg
Fat	91 g		

## 4. Sesame Biscuits

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Sesame seeds	75	½ K
Bengalgram dal powder	50	⅓ K
Refined flour	75	½ K
Sugar	100	⅔ K
Oil	50	⅓ K
Baking powder		a pinch
Salt	2	¼ tsp
Water	75 ml	½ K

**Method**

Mix all the ingredients. Roll to 1/8" thickness. Cut in any shape required. Pierce a few holes with a fork. Place them in a greased tray and bake for 10-15 minutes at 250° - 300°F.

Total weight of cooked biscuits	275 g
Number of biscuits	15

**Nutritive Value**

Calories	1850	Calcium	93 mg
Protein	3 g	Iron	21 mg
Fat	86 g		

**5. Cheera**

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>	
Pressed rice	100	1	K
Groundnuts	50	1/2	K
Sugar	120	1	K

**Method**

Roast pressed rice till crisp. Roast groundnuts till brown. Remove husk and powder coarsely. Melt sugar in a heavy vessel. Put off the flame and add pressed rice and groundnuts. Mix well and spread on a greased wooden board. Cut into pieces with a greased knife before it gets cold.

Total weight of cooked cheera	325 g
Number of pieces	25

**Nutritive Value**

Calories	1111	Calcium	65 mg
Protein	19.3 g	Iron	21.4 mg
Fat	21.6 g		

**6. Chikki**

<b>Ingredients</b>	<b>Weight (g)</b>	<b>Measure/No.</b>	
Roasted groundnuts	150	1 1/2	K
Sugar	135	3/4	K



## Method

Roast groundnuts and remove their husk. Grind them in small pieces. Grease one wooden board and pin and a knife with very little ghee. Melt sugar in a heavy vessel. Put off the fire, add groundnuts and mix well. Immediately pour over the grated board and spread with the help of the pin. Cut into small pieces with greased knife.

Total weight of chikki	280
Number of pieces	24

## Nutritive Value

Calories	1395	Calcium	115.5 mg
Protein	39.3 g	Iron	4.65 mg
Fat	59.7 g		

## 7. Chidwa (Mixture)

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Rice flakes	100	1 K
Roasted bengalgram dal	50	1/3 K
Roasted groundnuts	50	1/3 K
Namak para	115	100 pieces
Turmeric	1	a pinch
Chillie powder		to taste
Salt		to taste
Oil	20	5 tsp
Curry leaves and green chillies (optional)		a few

## Method

Roast rice flakes till they are crisp. Add roasted bengalgram dal and groundnuts. In a heavy vessel, heat oil, add curry leaves and green chillies, remove from the fire and add turmeric, salt and chilli powder. Apply this mixture in little amounts to different portions of rice flakes mixture till the whole mixture is completed. Add namak para.

Total weight of mixture	285 g
Measure	6 K

## Nutritive Value

Calories	1270	Calcium	128 mg
Protein	36 g	Iron	28 mg
Fat	59 g		

## 8. Matthi

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
White flour (maida)	100	1¼ K
Semolina	20	1 tbsp
Sesame	10	2 tsp
Ajwan (Celery seeds)	5	1 tsp
Salt		to taste
Water	80 ml	½ K
Oil	16 ml	4 tsp
Oil absorbed in frying	60	½ K

## Method

Mix all ingredients except oil to fry and make a hard dough with water. Roll twelve small rounds and pierce them with a knife. Then fry each one of them in oil till golden brown.

Total weight of cooked matthi	190 g
Number of cooked matthi	12

## Nutritive Value

Calories	1176	Calcium	247 mg
Protein	16.0 g	Iron	5.3 mg
Fat	81 g		

## 9. Namak para

<i>Ingredients</i>	<i>Weight (g)</i>	<i>Measure/No.</i>
Refined white flour (Maida)	40	⅓ K
Ghee or oil	5	1 tsp
Ajwan	3	½ tsp
Salt		to taste
Water	30 ml	



**Method**

Mix all the ingredients and make into a hard dough. Roll into a t chapathi and cut in big pieces (1" x 2½"). Fry them in oil, till gold brown.

Total weight of namak para	115 g
Number of pieces	100 (1" x 2½" each)

**Nutritive Value**

Calories	273	Calcium	39 mg
Protein	5 g	Iron	2 mg
Fat	15 g		

## APPENDIX - I

**Recipe combinations which provide one day's calorie requirement (2200) for old people**

Days	Recipes	Measure	Calories (Kcal)	Protein (g)
1	Ragi ambali	9 K	690	21
	Methi paratha	9 Nos	1155	41
	Black gram dal laddu	3 Nos	390	9
			----- 2235	--- 71
2	Dalia	9 K	1158	52
	Pohe	5½ K	890	14
	Coconut laddu	2½ Nos	291	2
			----- 2339	--- 68
3	Khichidi	5 K	1170	43
	Curd salad	6 K	516	20
	Groundnut biscuits	5 Nos	465	9
			----- 2151	--- 72
4	Savian upma	8 K	1340	34
	Sprouted greengram	3½ K	520	26
	Sesame biscuits	3 Nos	465	9
			----- 2230	--- 67
5	Upma	6 K	1215	27
	Perugu Atukulu	3 K	524	15
	Ragina	1½ K	448	10
			----- 2187	--- 52



Days	Recipes	Measure	Calories (Kcal)	Protein (g)
6	Matthi	6 Nos	588	8
	Khichedi	6 K	1402	51
	Chikki	2 Nos	349	10
			-----	---
			2339	69
			-----	---
7	Methi paratha	9 Nos	1155	41
	Suji kheer	1¾ K	455	14
	Chidwa	1½ K	325	9
	Curd salad	3 K	258	10
			-----	---
			2193	74
			-----	---

Note: 1 K = 150 ml volume. K = Katori (bowl)

## ANNEXURE - II

### Average Nutritive Value of Foods per 100 g

Foodstuffs	Protein (g)	Fat (g)	Carbo- hydrates (g)	Calories (Kcal)
Cereals	9.9	2.3	71.0	344
Bread	7.8	0.7	51.9	245
Salt biscuit	6.6	32.4	54.6	534
Sweet biscuit	6.4	15.2	71.9	450
Pulses	22.6	2.0	58.4	342
Green leafy vegetables	3.8	0.6	6.0	45
Roots and Tubers	1.2	0.2	16.0	70
Other vegetables	2.2	0.3	6.3	36
Nuts and Oilseeds	15.2	46.6	20.4	578
Condiments and Spices	9.8	6.6	40.6	261
Fruits	1.1	0.4	7.6	79
Meat	21.0	4.9	0.8	131
Egg	13.3	13.3	0.0	173
Milk	3.6	5.8	4.7	85
Curd	3.1	4.0	3.0	60
Butter	0.0	81.0	0.0	729
Ghee	0.0	100.0	0.0	900
Oil	0.0	100.0	0.0	900
Sugar	0.1	0.0	99.4	398
Honey	0.3	0.0	79.5	319
Jaggery	0.4	0.1	95.0	383
Sago	0.2	0.2	87.1	351

Source: S. Pasricha, Count What You Eat, NIN, Hyderabad, 1989.



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